From		Telephone	Nuremberg
STDN/PRM	Product Management	+49 911 93456 0	25.06.2013

Release Letter

Products:	***H.264 Firmware for*** ***CPP4 HD/MP cameras***
Version:	***5.80****.0073*

This letter contains latest information about the above mentioned firmware version.

Corrected version. Changes in blue.

1 General

This firmware release is a maintenance release based on FW 5.70.0039.
It is an upgrade to CPP4 (formerly known as IPBE4 platform) based cameras only.

The platforms have been renamed for a more generic recognition to “Common Product Platform”, short CPP, followed by the architecture-related number or suffix.
The filenames are adapted accordingly.

Note:
Since FW 5.50 the products support enhanced encryption capabilities to provide compatibility to modern browsers.
Using HTTPS (SSL) automatically encrypts all payload channels (video, audio, metadata, etc.) related to the initiated communication.
No separate AES Encryption license is required for normal use. This might only be considered if the product reaches its performance limits and a few more percent of computational power would help.

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2 Applicable products:

- IP micro 2000 *
- IP micro 2000 HD *
- FLEXIDOME micro 2000 IP *
- FLEXIDOME micro 2000 HD *
- IP bullet 5000 HD *
- FLEXIDOME micro 5000 HD *
- FLEXIDOME micro 5000 MP *
- FLEXIDOME indoor 5000 HD *
- FLEXIDOME outdoor 5000 HD *
- FLEXIDOME indoor 5000 MP *
- FLEXIDOME outdoor 5000 MP *
- FLEXIDOME corner 9000 MP *
- Vandal-proof FLEXIDOME HD 720p, NIN-733V0x-xPx *
- Vandal-proof FLEXIDOME HD 1080p, NIN-832V0x-xPx *
- Vandal-proof FLEXIDOME HD 1080p HDR, NIN-932V0x-xPx *
- AUTODOME 7000 series *
- DINION HD 1080p HDR, NBN-932V-IP
- FLEXIDOME HD 1080p HDR, NDN-932Vxx-IP
- DINION HD 1080p, NBN-832VxP
- FLEXIDOME HD 1080p, NDN-832V0x
- DINION HD 720p, NBN-733V-xP
- FLEXIDOME HD 720p, NDN-733V0x-xP
- Indoor Minidome 1080p, NDC-274-Px
- Indoor Minidome 5 MP, NDC-284-PT

(* new with release 5.80)

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3 New Features

Image Processing

- Sharpness increase by improvement of contrast enhancement.
- Color rendition and saturation improvement by retuning of color matrix.
- Improved spatial / temporal noise reduction balance to reduce low light motion blur.
  - iDNR now uses both spatial and temporal noise reduction instead of only temporal.
- Saturation control for reduction of blooming highlights and improved HDR capability (HDR cameras only).
  - Set to max peak for best HDR performance.
- Lower default day-night transition moment.
- Spatial filter slider and temporal filter slider power tensor (effort amplification) increased.

Domes

- Dropdown list for PTZ presets is added to View Control on LIVEPAGE. Display can be configured on LIVEPAGE settings.
- Buttons for 'show home' and 'find home' are added to the LIVEPAGE.
- New button ‘refocus’ added to LIVEPAGE to initiate one push button.
- Virtual Masking is added to Bosch Intelligent Tracking for AUTODOME series.
- Camera profile modes are added to AUTODOME series.
- Information regarding System Controller and CMC Version is displayed on the System Overview page.
- 256 presets are supported.

Cameras

- iDNR is available in IP 2000 and IP 5000 camera series.
- User modes can be switched on trigger and schedule–based (using Alarm Task Scripting).
- A 4:3 crop with resolution 1280x960 is available as a choice for the second (~~first~~) stream. Note that first stream resolution must not exceed 720p30.
- Continuous analog output can be switched to specific modes.
  - Selectable 16:9 or 4:3 aspect ratio on the analog output of the NIN series cameras.
  - Selection of cropped 4:3 mode on analog output.

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IVA and Forensic Search

- Intelligent Tracking has been added as event source to allow alarms or enable recording when tracking starts.
- IVA AUTODOME presets are increased to 16 from the previous limit of 10.
- Switch is added for 'IVA behind privacy masks' for AUTODOME Intelligent Tracking.
- A timeout parameter is added to posting of face images which allows posting best faces in defined periods independent of the person staying in scene.
- The Forensic Search Rule Engine now supports negative values in the "Resolution" statement, provides a version number and supports re-identification of objects from IVA.

Miscellaneous

- Display stamping is now automatically adapting to image resolution for better readability in downscaled views. Stamping for 720p is roughly doubled, for 1080p is roughly quadrupled in comparison to SD formats.
- Secondary DNS server is supported.
- DNS and DHCP addressing is combined via hostname.
- SMTP port is adjustable using parameter in the ATSL script.
- AAC audio bandwidth can be adjusted to low or medium bandwidth.
- Cloud connection status is reflected in the System Overview page
- Qualified authentication of a Bosch device based on certificates stored in the trusted-platform ID chip.

Integration

- Generalized RCP+ interface for picture settings (contrast, brightness, saturation).
- Generalized RCP+ interface CONF_VIDEO_INPUT_FORMAT_EX for camera base frequency to set 25/30 and 50/60 ips modes.

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4 Changes

- The Encoder Profile matrix is reworked to reflect the bitrates of our modern encoders in specific scenes and re-organized to better explain the various use cases.
- Creation of profiles with identical name is now prohibited.
- When recording is started GOP length is set to 60 regardless of 50 or 60 Hz base modes. The default value of 60 can be modified.
- Retention time on local recordings now refers to the maximum time due to legal requirements. The former minimum retention time is not required in local recordings, thus overwrite checkboxes are discarded.
- Tamper alarms function as edge-triggers when starting recordings to avoid unnecessary long-term alarm recordings.
- Live Export is removed from I-Frame tab.
- The byte order of the command CONF_SET_VIRTUAL_ALARM_ID has been corrected to network byte order (big endian).

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5 Restrictions; Known Issues

- If UAC is set to default in Windows 7, no snapshot or recording via LIVEPAGE is possible.
- Only H.264 Main Profile using CABAC is supported. CAVLC is not supported.
- The camera date/time will be set to default (Year 2000) after power loss exceeding the buffer period. It is important to ensure that the date/time is correct for recording. An incorrect date/time setting could prevent from correct recording.
- After firmware upload while daylight saving time checkbox is activated the time zone must be adjusted.
- After reboot, the system time re-synchronisation may be delayed up to 9 seconds for SNTP respectively up to 14 seconds for time server protocol.
- LUN size for local recording via “Direct iSCSI” is limited to 2 TB.
- VRM version 2.12 or higher is required.
- In some cases formatting errors on external iSCSI drives may occur, which might need multiple tries to overcome.
- In rare cases it may happen that the owner of an iSCSI LUN is not displayed correctly. Recording is not affected, just previous owner remains displayed.
- If a device had primary and secondary recording running on SD card and is then added to a VRM system, the blocks used for primary recording will not be re-used, reducing the available recording space for the ANR recording. This can be solved by re-formatting the SD card.
- Throughput limit for simultaneous recording and local replay at 100% playback speed is:
  - maximum total recording bit rate of 7 Mbps for external iSCSI recording
  - maximum total recording bit rate of 10 Mbps for SD card recording, depending on SD card performance
- SD card recording performance is highly dependent on the speed (class) and performance of the SD card.
- FTP exported files which include audio in a format other than AAC must be renamed from .mp4 to .m4a to allow correct playback in QuickTime.
- If the memory protection inside the Internet Explorer is enabled (default setting), the automatic installation of Autoload Decoder will fail without producing an error message.
  Consequently, the replay page will not show video.
  As a work-around, two options are available:
  - Disable memory protection in Internet Explorer and re-connect to the device.
  - Manually download the Autoload Decoder installer from the device.
    The installer can be downloaded via http://<ipaddress>/setup.exe and started manually.
- With I-frame-only recording and audio also enabled for recording, audio will be fragmented or not audible during replay. Please disable audio recording in case of I-frame-only recording.
- With JPEG Posting active when device is booting, the first posted JPEG image may be a no-cam logo.

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- Numbering of the recorded files on the replay page is not always contiguous.
  If snippets across block borders belong together, like pre-alarm and alarm recording, the snippets become logically united and only the lower file number is presented in the list.
- Video and audio may be asynchronous during replay via Web page.
- FTP posting with resolution 1080p delivers JPEG with size of 1920x1072 pixels due to 16 pixel macroblock boundary of the JPEG encoder.
- If a VCA configuration using a rule engine is switched to a VCA configuration without using a rule engine, e.g. MOTION+ or IVA default configuration, the saved configuration is invalid. Forensic search with this configuration may lead to undesired search results.
- JPEG always has HD 1080p format, although stream 1 could be set to SD (480p).
- In rare cases it may happen that no recordings can be found on PC with Windows XP SP2 and IE6. Internet Explorer may stay in status ‘connecting on replay page’. An update of Internet Explorer is recommended.
- Frame rates in low light mode might vary and cause bit rate control to produce higher bit rates than set as maximum.
- Autopan starts outside of defined range if orientation is set to “Inverted”.
- Tilt up limit is treated as lower tilt limit if orientation is set to “Inverted”.
- A printout was added to telnet when sending an e-mail failed.
  A more detailed printout was added for the three error cases 'could not connect to server', 'authentication failed' and 'recipient not accepted'.
- SDXC cards are formatted to FAT32 file system and not using the exFAT file system as being mandatory for SDXC standard compliance but fully recognized and accessible.
  The maximum size of 2TB is also supported with FAT32, once SD cards of that size might become available.
  FAT32 also increases portability to other than Windows platforms.
- Aspect ratios 16:9 and 4:3 are not combinable. Aspect ratio from stream 1 will lead.
- With GOP structure set to IBP and IBBP the I-frame distance may not exactly correspond with the set value.
- Installation of Autoload Decoder fails if more than one NIC is installed in a PC.
- For VG5, when Fast Address was changed a reboot is required to activate it.
- Replay using Autoload Decoder may be jerky when a device is close to or in an overload situation.
- IVA and flow need at least 12.5 frames per second video input frame rate. If IVA or Flow are configured, minimum frame rate of 12.5 must be set in ALC mode.
- In Firefox, no audio is audible on the Audio Settings page.
- Opera mini for mobile devices can not work in Intranets because it gets all pages through an opera proxy in the Internet. If there is no Internet connection no content is provided.
- When changing GUI language, the browser cache may have to be deleted and the web browser be reloaded before the language will be selected correctly.
- QoS values are set according to group Video/Audio/Control for UDP packets, but for TCP packets, only the QoS value for Video is inserted.

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- In AutoDomes, blanked sector may trigger a “too dark” alarm.
- On AutoDomes, privacy masking does not cover the complete configured area if privacy mask is placed too close to the edge of a scene. Move the target position to the center of the scene before creating a privacy mask.
- If a local media is exchanged, existing former recordings are only discovered after rebooting the device.
- AAC audio timestamps for UDP live video streams as well as for recording streams are based on 90 kHz instead of 16 kHz to ensure compatibility with VideoSDK.
  AAC audio timestamps for TCP live video streams are based on the standard 16 kHz timestamps. Standard players should connect to live video with AAC audio using TCP.
- If LIVEPAGE is refreshed during recording of Tour A/B on AutoDomes the button “Stop display” will falsely display “Start recording” but still continue tour recording.
- There is only one configuration for IVA. When analysis type is changed, e.g. from IVA to IVA Flow, the former configuration is lost. Due to this, it is not possible to change the analysis type in a VCA profile switch.
- If FTP export files contain only a few frames some players might not correctly replay such a file, or the replay is too quick to recognize something. The exported file is not corrupt though it might seem so.
- After a firmware upload it may happen that the Privacy Masks and settings from Installer Menu are set to default. Make sure to check if Privacy Masks and Installer Menu settings are still valid after uploading new firmware.
- Due to a limitation of the script language that is used in the background, the delay timer for event-triggered VCA starts immediately when the configuration is set. A trigger event during this period does not restart the timer. Once the timer has elapsed, operation is as desired.
- On devices with VCA FPGA an outgoing IPv6 connection fails when device is initiator, e.g. trying to resolve a time server domain name,
- Files exported using continuous FTP backup for Rec. 2 where stream 2 is set to I-frames only mode contain wrong timing information and play back too fast.
- Some online help files describe a tracking icon which is not visible, documentation obsolete.
- IP addresses 172.20.1.0/30 which include 172.20.1.0 to 172.20.1.3 are reserved for internal communication and must not be used as device addresses. Products without internal communication ignore this restriction and allow the use of this range.
- For stream setting “Dual ROI” the maximum resolution of stream 2 is 288p regardless of a higher resolution selected in the encoder profile.
- After changing the selectable camera mode via alarm input the switch back to a previous mode doesn't work anymore.
- Firmware upload stops recording when it fails or is terminated.
- FTP export file size is always 100 MB if resolution change occurred in exported time span.
- After downgrade configuration integrity cannot be ensured and settings need to be checked or re-configured.
- Google Chrome requires a plug-in for displaying TIFF images to properly show the reference image.

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- When a configuration file is loaded to an incompatible camera, e.g. a configuration file from a HD camera loaded onto a VGA camera, encoder settings might become invalid and need to be re-configured.
- IE10 by default does not allow snapshots or recording from the LIVEPAGE on local hard disk until one of the following actions is performed:
    - o - uncheck the box "Enable Protected Mode" in internet options/security
    - o - add the device's IP range to "Local intranet" zone
    - o - add the device's IP address to the trusted sites
    - o - start IE as administrator
- If an intranet site is opened, IE10 automatically runs in compatibility mode.
  This leads to a misbehaviour that no timeline is shown on the PLAYBACK page.
  Therefore the function "Display intranet sites in Compatibility View" must be disabled.
- Changing audio format while audio is being recorded may cause unknown behaviour of the device and must be avoided.

Please check the respective release letter of a camera for further device-specific restrictions.

6 System Requirements

- Web Browsers:
    - o Microsoft Internet Explorer 9.0 or higher
    - o Mozilla Firefox
- Oracle Java Virtual Machine 1.6.0_35
- DirectX 9.0c
- MPEG-ActiveX 5.61 or newer
- Configuration Manager 4.44 or newer

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7 Previous Revisions

7.1 Changes with 5.70.0039

- Audio back-channel is now supported via SSL connections.

7.2 Changes with 5.70.0038

- Lens wizard timeout behavior is changed to close browser connection after 10 minutes.
- Audio back-channel is now supported via SSL connections.

7.3 New Features with 5.70.0038

- Support of new vandal-proof HD cameras
- Continuous analog output for vandal-proof HD cameras
- A 1280x960 crop mode, aspect ratio 4:3, is available in 1080p cameras.
- Device capabilities are included in XML response of network scan.

7.4 Changes with 5.60.0063

- RECORDINGS page renamed to PLAYBACK
- Tamper alarms like too noisy, too dark, reference check could have forced alarm recording for very long periods though no relevant material is captured. Tamper alarm recording has been changed to edge-trigger but tamper alarms are presented as long as they persist.
- FTP name scheme changed to allow sorting by date, new scheme like snap_cx_YYYYMMDD_hhmmss.jpg
- Due to legal requirements, minimum retention time has been changed to maximum retention time for local recordings.
- To fully comply with the RFC '_' characters are replaced by '-' in the MIB file.

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7.5 New Features with 5.60.0063

- Support of DINION and FLEXIDOME 720p60 cameras NBN-733 and NDN-733

Encoder

- "Virtual cameras" through second instance of region-of-interest (ROI) stream 2, fully supporting independent electronic pan/tilt/zoom, session-based addressable
- Upright 9:16 ROI cut-out for portrait view (corridor mode)
- 4:3 ROI cut-out (D1/4CIF) to serve "old-world" viewing systems
- Area-based encoding to reduce unnecessary bandwidth. Up to 8 regions can be set for better or flawed encoding, depending on interest or importance of area.
- New SEI (supplemental enhancement information) packets are added to the video stream, providing information about timestamp and timezone of originating device, geographic information based on world coordinates, only available when fully calibrated, PTZ positions, and ROI cut-out positions.
- Auxiliary data packets are added to the AAC audio stream, providing information about timestamp and timezone of originating device.

Recording

- Fixed ROI recording, with E-PTZ off
- Support Dropbox cloud based storage as export location
- Accounts for FTP and Dropbox, 4 accounts possible.

VCA

- Object tracker for E-PT-capable box cameras and ROI
- Face detection and Smart Search for faces, including rule engine syntax elements for best face, face quality and face size.
  Faces can be exported as high-detail JPEGs to configured accounts for further processing.

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Miscellaneous

- Out-of-the-box support for Bosch Cloud-based Security & Services(CbS)
- Lease time for electronic pan/tilt/zoom (E-PTZ) of ROI, similar to true PTZ cameras
- Dynamic DNS extension to alternative providers no-ip.com and selfhost.de
- Central URL http://downloadstore.boschsecurity.com where devices automatically check for new FW when Internet access is provided.
- A JPEG thumbnail image is returned in auto-detect reply after network scan.
- ONVIF conformance to Profile S, validated with recent ONVIF test tool 12.06, with additional beta features of Profile G, like search service and replay service.

7.6 Changes with 5.52.0015

- NTCIP support has been moved under license and is not available anymore for free.

7.7 New Features with 5.52.0015

- Support of new DSA E-series iSCSI storage arrays

7.8 Changes with FW 5.51.0045

- Mp4 files have been internally restructured to allow almost immediate replay access.
- VCA overlays are disabled when stream 2 is in ROI mode.

7.9 New Features with FW 5.51.0045

- Support of new devices:
  - DINION HD 1080p HDR
  - FLEXIDOME HD 1080p HDR
  - NDC-274-PT, NDC-274-PM
  - NDC-284-PT
  - AutoDome 800
  - AutoDome Junior 800
- TCP rate control, which enables the Adaptive Bit Rate encoding function, can be disabled. This allows reverting to former behaviour.

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7.10 Changes with FW 5.50.0059

- DHCP is enabled by default with new devices to achieve ONVIF Plug&Play compatibility. Settings remain untouched during firmware upgrade.
- NTCIP support is now a licensable option for dome cameras.
- Class D IP addresses are denied for standard address fields in Web browser.
- Unused pre-alarm buffer is released when changing the recording block.
- RTSP multicast connections need a retrigger to keep alive, initiated by the CGI parameter "mcRetrigger", which is set by default.
  It can be disabled by setting mcRetrigger=0 in the RTSP URL for environments where no keep-alive messages are sent. Otherwise the connection will time out after 1 minute.

7.11 New Features with FW 5.50.0059

Encoder

- Predictable rate control for long term recording ensures that maximum bit rate is not exceeded by peaks due to high motion. This makes storage calculation more reliable.
- Downscaled images from HD cameras can use resolutions with undistorted 16:9 aspect ratio.
- Instead of only downscaled resolution on second stream also HD resolution with lower frame rate can be selected, e.g. 1080p4/5 or 720p8/10.
- JPEGs are also possible with downscaled resolutions.
- Adaptive Bit Rate encoding is available in TCP mode for replay and live. This is activated as long as there is only a single client connected to the stream. With the second connection, the profile settings become active.
- Quality settings (QP settings) are harmonized over all products.

Network

- IPv6 support for Web browser access to product pages, including live view, control and replay, has been introduced.
- Quality of Service (QoS) allows setting different priorities for video, audio and control connections.
- IP Filtering allows defining two IP address ranges allowed to communicate with a device.
- Flexible path for FTP can be defined, using a built-in FTP explorer.
- HTTPS encryption using AES and 3DES ensures compatibility with latest Web browser generations like IE9.
- SNMP community names can be defined.
- HTTP streaming (server push) allows mobile clients to access video.
- MTU can be configured to adapt to network conditions.

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Recording

- Continuous recording files can be exported to a FTP server.
- Pre-alarm recording for short time spans can be done in RAM.
- FTP login data can be verified during setup.
- Recording ID can be delivered with triggering a virtual alarm and stored within metadata.
- Filenames for FTP export can be defined more meaningful by using pre-defined variables in an Alarm Task Script.

Alarm

- Alarm images, JPEGs attached to alarm emails, can be defined more meaningful by using pre-defined variables in an Alarm Task Script.
- Quality of Service (QoS) level for video can be set higher on alarm.
- True HTTP request is now possible in the Alarm Task Editor as an additional SendHTTPCommand().

VCA

- IVA 5.5 has been incorporated in firmware 5.50.
  Please refer to the respective release letter for details.

Web browser interface

- Region of Interest (ROI) cut-out on LIVEPAGE can be configured as property for stream 2. Pan, tilt and zoom functionality is available there to dynamically move the region of interest over the full video and control the size of the cut-out via the zoom factor.
  ROI is disabled in case of recording of stream 2.
- Mobile device can access the devices via browsers and are forwarded to specific pages, optimized for viewing on mobile devices. These pages use HTML5 technology with HTTP streaming for the live stream and HTTP download of recording files in .mp4 format.
  Apple devices support live view and playback of recordings.
  Android and Windows Phone support live view only.
- Pixel Counter allows counting of pixels in respect to stream resolution, e.g. to check if number of pixels of object in view is sufficient for identification.
- I-Frame only stream can be configured to be shown on the LIVEPAGE.
- The expected frame rate for I-Frame only is indicated on recording page.
- Display of V-SDK overlay icons can be configured on the LIVEPAGE settings
- Preview images in settings pages can be expanded for more details, including 1:1 view.
- Buttons to reboot a camera remotely and to set all camera and encoder parameters to factory defaults have been added.

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ONVIF

- ONVIF Profile S is supported.

Miscellaneous

- Debug logging has been enhanced to ease investigation during support cases.
- Holidays (Special Days) are updateable without stop/start recording.
- AAC is supported in addition to G.711 and L16 audio codecs and is selectable for recording. It provides higher audio quality than G.711 with 16 kHz sampling rate at significantly lower bit rate of approx. 48 kbps.
- Firmware files of all three platforms are combined into a common file that can be uploaded to any applicable product, regardless of the platform.

Camera specific features

- Support for Motorized Zoom Lenses
- Lens installation aid for motorized lens devices

7.12 Changes with FW 5.01.0007

- A problem with detection of some lens types has been fixed.

7.13 Features with FW 5.01.0006

- Support of FLEXIDOME HD 1080p, NDN-832V0x added.

7.14 Features with FW 5.00.0066

- Exclusive support of DINION HD 1080p NBN-832VxP
- ONVIF 1.02 conformance
  PTZ, event and imaging services are supported.
  Firmware is fully conformant to the official ONVIF Test Tool 1.02.
- Quadruple Streaming capabilities:

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	Stream 1	Stream 2	Stream 3	Stream 4
Quadruple streaming	HD 1080p30	Downscaled stream	I frame only (from stream 1)	JPEG (HD 1080p)
Alternative streaming	HD 1080p30	HD 1080p30 (Copy of stream 1)	I frame only (from stream 1)	JPEG (HD 1080p)
Alternative streaming	HD 720p30	HD 720p30	I frame only (from stream 1)	JPEG (HD 720p)
Alternative streaming	HD 720p30	Downscaled stream	I frame only (from stream 1)	JPEG (HD 720p)
Alternative streaming	Downscaled stream	Downscaled stream	I frame only (from stream 1)	JPEG (HD 1080p)

- All video, also the downscaled stream, is provided in 16:9 aspect ratio.
- Recording of I-frames only is possible from both, stream 1 and stream 2.
- Recordings can be exported as *.mp4 files to a FTP server, either manually or after an alarm. The resulting file can be replayed with standard players.
- Replay from local recording via Web interface has been re-introduced. This allows replay over bandwidth-limited connections and connections using NAT.
- An “early warning” message is created when the device is in danger to run out of recording blocks. This message can also be sent as SNMP trap.
- In alarm e-mails with JPEGs attached, JPEG name includes camera name, date and time information for easier differentiation and archiving.
- Privacy masks are automatically excluded from alarm creation in MOTION+ and IVA.
- Intelligent Video Analysis (IVA) is enhanced to cover HD resolution.
- IVA allows Crowd Level Detection in a field.
- New IVA software framework for more reliable detection. This allows reduction of false alarms caused by shadows or windy elements, more stable object ID, pre-estimation of trajectory of an object, and improvement of the detection of small and slow objects.

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- New IVA versions can be tested during a 30-day trial period, beginning with upgrading to a firmware including a new IVA version.
  This special activation key can only be applied once per new IVA version.

  To start the 30-day trial period a special Global License Activation Key must be entered via the License page in the Web browser or the Configuration Manager:

  02-08.20.2D0-C3C6D6F8-0FF05DE6-C9983538-45DB6B3F-F2A5AF58

  This Global License Key is valid for all applicable and IVA-capable products.
  To avoid typing errors it is recommended to copy & paste the key from this release letter.

- MOTION+ alarms can be applied with a debounce time of 1 second to reduce event load to management systems.
- Multiple MOTION+ or IVA alarms can be aggregated over a configurable time period.
- Recording of transparent (e.g. ATM or POS) data via plain TCP channel is possible.
  Data is stored as metadata and can be searched later on.
- The time limit for tamper detection with reference image has been extended to 9999 seconds.
- RTSP audio connections use 8 kHz timestamps to allow audio with standard media players like QuickTime or VLC.
- L16 audio is possible in 16 kHz quality for live connections.
  This mode requires approx. 500 kbps for such an audio stream.
  Recording of 16 kHz audio is also possible.
- UPnP discovery support can be enabled or disabled.
- Extended multi-connectivity by increasing RCP+ connections to 100 minimum.
- Decentralized event pre-processing is possible via Alarm Task scripting.
  Devices can register for RCP messages and payload as input for script actions.

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